

- XIX. *Glossina morsitans*, Westw.: *Some Notes on the Parasitisation of its Pupae*. By HEREWARD C. DOLLMAN, F.E.S., Entomologist to the British South Africa Company.

[Read October 6th, 1915.]

PLATE LXIV.

ALTHOUGH as yet my work on this particular subject is incomplete, such results as I have definitely arrived at are perhaps of sufficient importance to be recorded.

This note concerns a high percentage parasitisation of the pupae of *Glossina morsitans* by a small species of *Mutilla*. The latter, from material sent by me to the Keeper of the Insect Department of the British Museum, and submitted by him to Mr. Rowland Turner, F.E.S., has been described as a new species, under the name of *Mutilla glossinae*, Turner (*vide* Bull. Entom. Research, v, p. 383, 1915). The locality where the work was carried out is the district of Namaula, situated between the Government stations of Namwala and Mwendwa, in proximity to the Kafue River, N.W. Rhodesia. The exact locality of the parasites I hatched out is not easily capable of reference; this is so because I was encamped some miles from any native village, and away from any river, kopje, or other noticeable geographical feature. The nearest native village was that of Shimukuyela, some six or seven miles away; the "Namaula district" comprises by no means a large territory, however, and is, for all practical purposes, no doubt sufficient. The pupae of *Glossina morsitans* were found under, or very closely adjacent to, felled or fallen trees, in such situations as were found so fruitful by Mr. Lloyd in 1913. In my limited experiences of pupa-hunting for tsetse, I was, in this district and at this time, rewarded far more lavishly than has been my good fortune before or since.

Of the large number of pupae taken (for so very brief a period), some seventy-five per cent. were sifted out

from the close vicinity of two large, and one small, felled trees; the three trees being within two hundred yards of one another.

In each instance the tree was old and dry, and in the case of one of them, heavily charred by the recent fires. The other pupae were collected by natives from the immediate district (one or two miles) from an apparently similar habitat.

In reference to "big game" in the close vicinity of this highly favoured "breeding-ground," I may safely say that there was an abundance. A large herd of eland, herds of water-buck and sable antelope, hartebeest (*Bubalis lichtensteini*) in numbers, a small herd of kudu, some twenty zebra, two or three pairs of oribi and of reed-buck, and innumerable wart-hog, were all seen certainly within one mile of the locality during my brief stay there.

The sand around the "breeding-ground" was impressed with the "spoor" of many animals, particularly that of pig and eland. In addition, the carnivora were represented by a pack of lions (which, on one night at any rate, numbered at least eight), hyena, and jackals.

I have dwelt somewhat fully on the "big-game"; to me it seemed a noteworthy fact, particularly considering the almost entire absence (normally) of Bantu from the neighbourhood. The only native path for some miles was hardly discernible, and obviously but very little frequented.

The type of country is one very familiar to those who know this part of Northern Rhodesia. Tall, slender timber, for the most part leguminous in character ("Mopani" and its allies), the shrubby *Bauhinia*, an occasional "Baobab," and ever and again a group of isolated palms; the undergrowth, a comparatively sparse and untangled vegetation. Relief from seemingly interminable stretches of such forest country is to be welcomed in the open "vleis," or the uncouth rugged formation of sporadic kopjes.

My work was done at the end of August and the beginning of September; at this time most of the undergrowth among the timber, and the long grass of the "vleis," had been destroyed by the all-consuming "veld-fires."

The first emergence of *Mutilla glossinae* was noted on August 28th; on this day three ♂♂ appeared in the breeding-jar. The last date upon which one of the parasites

hatched was September 9th. I append a brief table of the period included between these two dates.

TABLE TO SHOW THE DATES OF EMERGENCE OF THE
♂ AND ♀♀ *Mutilla glossinae*.

Date.	♂ <i>Mutilla</i> .	♀ <i>Mutilla</i> .
August 28th . . .	0	3
„ 29th . . .	0	1
„ 30th . . .	0	9
„ 31st . . .	0	0
September 1st . . .	0	14
„ 2nd . . .	0	11
„ 3rd . . .	1	17
„ 4th . . .	0	2
„ 5th . . .	0	3
„ 6th . . .	0	1
„ 7th . . .	0	0
„ 8th . . .	0	0
„ 9th . . .	0	1

It will be noticed that the disproportion of the sexes was very marked indeed; sixty-two females to one male.

I may mention that when I found it necessary to finish up the work in mid-September, I dissected the remaining unhatched pupae to ascertain whether they were, or were not, playing the part of hosts. In no pupa was I able to determine a parasite, *Mutilla* or otherwise; several of the pupae had obviously “dried-up,” while with others the incipient imago had suffered casual injury.

Unfortunately I found it necessary to return to my station at Mwendwa during September, to be in readiness to trek to Kashiitu. Hence the work was left incomplete, and here, as yet, the breeding-season of tsetse has evidently not thoroughly commenced.

EXPLANATION OF PLATE LXIV.

FIG. 1. *Mutilla glossinae*, Turner ♂.

2. „ „ „ ♀.